DOCKET NO: 368-011B PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of K. Park et al.	:	
Serial No: 09/811,248	:	Art Unit: 1796
Filed: March 16, 2001	:	Examiner: J. Cooney
For: SUPER-ABSORBENT HYDROGEL FOAMS	:	Confirmation No: 8278

PETITION UNDER 37 CFR 1.57(a)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Petition is hereby taken under 37 CFR 1.57(a) for the purpose of amending the above-referenced patent application to include inadvertently omitted portions of the specification. The petition fee set forth at 37 CFR 1.17(f) accompanies.

Amendments to the Specification begin at page 2.

Remarks begin at page 6.

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U.S. Serial No. 09/811,248
Petition dated August 15, 2008

Amendments to the Specification:

Please add the following new paragraphs after the heading

"Detailed Description of the Invention":

[0001] The hydrogel foams produced in accordance with the present invention have properties that make them uniquely adapted for use as superabsorbent materials. One unique property of hydrogel foams is their ability to swell extremely fast in aqueous solution. When the dried hydrogel foam of the present invention (having an open cell structure) is placed in an aqueous solution, water flows through the open channels by capillary effect, and rapidly swells the hydrogels. Conventional hydrogels also swell upon contact with an aqueous solution, but the swelling rate is much slower. For example, when hydrogels and hydrogel foams are formed in the size of conventional tablets (having a size range of 5-10 mm in diameter) and are contacted with water, hydrogel foams will complete swelling in less than an hour, while the hydrogels take more than 12 hours to reach an equilibrium swelling.

[0002] Hydrogel foams also swell to a much larger extent than the conventional hydrogels made of the same materials at the same concentration. Hydrogel foams in accordance with this invention can absorb more than 100 times its own weight of aqueous solution. In one embodiment in accordance with the present invention, a hydrogel foam is formed wherein the ratio of the volume of the gas phase to the volume of the solid phase is at least one. In another embodiment, a volume of the hydrogel foam of this invention having a size greater than 1 mm in its smallest dimension exhibits a water swelling ratio of at least 15 within one hour of contact with an aqueous solution. In a further embodiment, a volume of the hydrogel foam of this invention having a size greater than 1 mm in its smallest dimension exhibits at least 50% of its maximum swelling ratio within one hour of contact with an aqueous solution.

[0003] The hydrogel foams of the present invention are prepared by introducing a gas into an monomer solution comprising at least one hydrophilic olefin monomer compound, about 0.1 to about 10% by weight of a multiolefin-functional crosslinking agent and a surfactant, during polymerization of the olefin monomer. Preferably the polymerization reaction is conducted in an aqueous solution; however non-aqueous solvents, preferably water miscible non-aqueous solvents such as alcohols, ethers, dimethyl sulfide, dimethyl formamide and the like, can also be used to form the hydrogel foams in accordance with the present invention.

[0004] Hydrophilic olefin monomers for use in accordance with the present invention include those monomers having hydroxyl, keto and amino functionalities in addition to the alkene functionality. Suitable hydrophilic monomers for synthesizing hydrogels are known to those skilled in the art and include the hydrophilic monomers/polymers described in U.S. Pat. Nos. 4,178,361 and 3,551,556, the disclosure of which is expressly incorporated herein by reference. In particular, hydrogel foams of poly(acrylic acid) (PAA), polyacrylamide (PAM), polyvinylpyrrolidone (PVP), poly(2-hydroxyethyl methacrylate) (PHEMA), and poly(2-hydroxypropyl methacrylate) (PHPMA) have been prepared.

[0005] Some suitable examples of hydrophilic monomers include hydroxy lower alkyl acrylates or methacrylates, or hydroxy lower alkoxy lower alkyl acrylates or methacrylates such as 2-

hydroxy ethyl acrylate, 2-hydroxy ethyl methacrylate, diethylene glycol monoacrylate, diethylene glycol monomethacrylate, 2-hydroxy propyl acrylate, 2-hydroxy propyl methacrylate, 3-hydroxy propyl acrylate, 3-hydroxy propyl methacrylate, and dipropylene glycol monomethacrylate. Other suitable hydrophilic monomers include the heterocyclic polymerizable compounds containing a carbonyl functionality adjacent to the nitrogen in the heterocyclic ring such as the N-vinyl lactams, N-vinyl imidazolidones, N-vinyl succinimide, N-vinyl diglycolylimide, N-vinyl glutarimide, N-vinyl-3-morpholinone, N-vinyl-5-methyl-3-